

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended): A manipulator for servicing tubes extending through a tube sheet, comprising:

(a) a base member having a holder for holding tooling or an inspection device, the base member also having at least one gripper for releaseably gripping a tube extending through the tube sheet;

(b) a block member directly, rotatably connected to the base member, at least a portion of the block member moveable in a linear direction for linear movement, i.e., in a straight line in a plane perpendicular to a plane the base member rotates in, said rotation and linear movement of the block member being relative to the base member and rotation relative thereto; and

(c) a foot member directly connected to the block member for linear movement relative thereto, the foot member having at least one gripper for releaseably gripping a tube extending through the tube sheet.

2. (currently amended): The manipulator of Claim 1 wherein the block member has effects two directions of linear travel, i.e. in a straight line between the foot member and the base member, each direction in the plane perpendicular to the other, between the block member and the base member while maintaining the foot member and the base member in parallel planes.

3. (previously presented): The manipulator of Claim 2 wherein the two directions of linear travel are in the horizontal and vertical directions.

4. (previously presented): The manipulator of Claim 1 wherein at least one of the grippers exerts a force in a direction to draw at least one of either the base member or the foot member associated with the at least one of the grippers toward the tube sheet.

5. (previously presented): The manipulator of Claim 4 including a standoff pin that cooperates with the at least one of the grippers exerting the force to draw said base member and/or said foot member in the direction of the tube sheet to maintain said base member and/or said foot member a predetermined fixed distance from the tube sheet.

6. (original): The manipulator of Claim 1 wherein the foot member and block member each have at least two spaced grippers.

7. (currently amended): The manipulator of Claim 1 wherein each of the grippers includes insertion fingers that are respectively insertable into a corresponding one of said tubes extending through the tube sheet and each of said grippers further includes a limit switch that functions to verify ~~an acceptable~~ a pre-selected degree length of insertion of the insertion fingers into the corresponding tube.

8. (currently amended): The manipulator of Claim 1 wherein each of the grippers includes insertion fingers that are insertable into a corresponding one of said tubes extending through the tube sheet wherein the insertion fingers are biased against an interior of the corresponding tube by an internal piston that forces ball bearings to move in a direction of movement of the piston, up a tapered raceway between the piston and the interior of the insertion fingers forcing the insertion fingers out against the interior of the corresponding tube.

9. (original): The manipulator of Claim 8 wherein the insertion fingers are spring biased in a gripping position when inserted a predetermined distance into said tubes to avoid the loss of gripping power if a motive power of the piston is lost.

10. (currently amended): The manipulator of Claim 1 wherein the tube sheet is circular and the manipulator is sized to permit more than one independently operated manipulator, of substantially the same design, to be suspended from an underside of a semicircular portion of ~~the a~~ tube sheet in an inlet or outlet section of a hemispherical channel head of a steam generator and be operated in parallel.

11. (currently amended): The manipulator of Claim ~~401~~, herein designated as the first manipulator, suspended from the underside of ~~the a~~ semicircular portion of ~~the a~~ tube sheet in ~~the an~~ inlet or outlet section of ~~the a~~ hemispherical channel head of ~~the a~~ steam generator including a second manipulator of substantially the same design, as the first manipulator, suspended from the same semicircular portion of the tube sheet wherein the first manipulator and the second manipulator are designed to be operable at the same time.

12. (previously presented): The manipulator of Claim 1 wherein the manipulator is as much as approximately thirty pounds.

13. (previously presented): The manipulator of Claim 12 wherein the manipulator supports a payload of as much as seventy pounds.

14. (original); The manipulator of Claim 1 including pneumatic and/or hydraulic drives in combination with a single motorized drive.